

MATERIAL SAFETY DATA SHEET



Date-Issued: 02/15/1995
MSDS Ref. No: PSMSD-98B
Date-Revised: 08/10/2000
Revision No: 4

DEPHA(r) EXTRACTANT

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: DEPHA(r) EXTRACTANT
GENERAL USE: Metal Extractant
PRODUCT CODE: 98B
PRODUCT FORMULATION NAME: Phosphoric Acid, Bis(2-Ethylhexyl) ester
CHEMICAL FAMILY: Organic Acid Phosphates
GENERIC NAME: Di (2-Ethylhexyl) Phosphoric Acid

MANUFACTURER

Rhodia Inc.
Phosphorus & Performance Derivatives
CN 7500
259 Prospect Plains Road
Cranbury, NJ 08512-7500
P.O. Box 4439
Glen Allen, VA 23058-4439

Contact: Product Stewardship Department

Product Stewardship: (804) 968-6384

Transportation: (804) 968-6310

Customer Service: (804) 968-6300

24 HR. EMERGENCY TELEPHONE NUMBERS

CHEMTREC (U.S.): (800) 424-9300
CHEMTREC (Int'l): +1 (703) 527 3887

CANUTEC: (613) 996-6666
Emergency Phone: (800) 916-3232

COMMENTS: To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR 1910.1200, 91/155/EEC and Canadian Hazardous Products Act.

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT
CONTACT: CHEMTREC (800-424-9300 within the United States or 703-527-3887 for international collect calls) or Rhodia CAERS (Communication and Emergency Response System) at 800-916-3232.
For Product Information: (800) 243-5052

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS# EINECS#
Phosphoric acid, bis(2-ethylhexyl) ester	>93	298-07-7 206-056-4
Phosphoric acid, mono(2-ethylhexyl) ester	<5	1070-03-7 213-967-0
Phosphoric acid, tris(2-ethylhexyl) ester	<2	000078-42-2 201-116-6

EEC LABEL SYMBOL AND CLASSIFICATION



R 22: Harmful if swallowed.
R 38: Irritating to skin.
R 41: Risk of serious danger to eyes.

EEC Harmful - "Xn"

COMMENTS:

Product composition ranges shown are typical values for health, safety and environmental use and are not intended as specifications.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Clear and yellow organic liquid with characteristic odor

IMMEDIATE CONCERNS: WARNING! Causes eye and skin irritation. May be harmful if swallowed.

POTENTIAL HEALTH EFFECTS

EYES: May cause significant irritation to the eyes.

SKIN: Expected to cause significant irritation to the skin.

INGESTION: Expected to cause significant irritation to the digestive tract.

INHALATION: Expected to cause significant irritation to the lungs, upper respiratory tract, and nose.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Redness and possible itching and/or tearing of the eyes.

SKIN: Redness and possible burning of the skin.

INGESTION: Possible nausea and/or vomiting.

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INHALATION: Coughing, burning, tightness of chest and/or shortness of breath.

ACUTE TOXICITY:

Not expected to cause significant adverse effects if absorbed through the skin.
May cause significant adverse effects if ingested.
No test data is available for acute inhalation toxicity.

CARCINOGENICITY:

Not Listed by NTP
Not listed by IARC
Not listed by OSHA

MUTAGENICITY:

This product was tested to be negative in laboratory test tube studies.

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: Not Available

TERATOGENIC EFFECTS: Not Available

MEDICAL CONDITIONS AGGRAVATED: Possibly skin diseases or respiratory diseases.

TARGET ORGAN STATEMENT: May cause respiratory tract effects based on animal data

SENSITIZATION: Not Available

COMMENTS: For detailed toxicological information see Section 11.

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of water for two to three minutes. Remove any contact lenses and continue flushing for 15 minutes. Get medical attention.

SKIN: Remove contaminated clothing including shoes and immediately wash affected area with plenty of soap and water. Seek immediate medical attention. Wash contaminated clothing and shoes before reuse.

INGESTION: Wash out mouth with water and keep at rest. Seek immediate medical attention.

INHALATION: Remove from further exposure. Keep warm and at rest. If cough or other symptoms develop, seek medical attention.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 150°C (302°F)CC

FLAMMABLE LIMITS: Not Available

AUTOIGNITION TEMPERATURE: Not Available

FLAMMABLE CLASS: Nonflammable

FLAME PROPAGATION OR BURNING RATE OF SOLIDS: Not Available

GENERAL HAZARD: Evacuate personnel downwind of fire to avoid inhalation of irritating and/or harmful fumes and smoke.

EXTINGUISHING MEDIA: Chemical type foam, CO2 (Carbon Dioxide), Dry Chemical, Water Fog

HAZARDOUS COMBUSTION PRODUCTS: Oxides of both carbon and phosphorus

FIRE FIGHTING PROCEDURES: For small containers of organic substances, it should be considered if there will be less damage by allowing the material to burn to exhaustion rather than fighting the fire and risk causing environmental contamination and other problems.

FIRE FIGHTING EQUIPMENT: Respiratory and eye protection are required for fire fighting personnel. Full protective equipment (Bunker Gear) and self contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of a SCBA may not be required.

SENSITIVE TO STATIC DISCHARGE: Not Available

SENSITIVITY TO IMPACT: Not Available

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL:

Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material.

Wearing the appropriate personal protective equipment designated in Section 8, move the leaking container to a containment area or rotate the container so that the opening is above the liquid level.

Absorb on diatomaceous earth or equivalent inert material. Shovel up and dispose of at an appropriate waste disposal facility according to current applicable laws and regulations, and product characteristics at time of disposal.

LARGE SPILL:

Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material.

Wearing the appropriate personal protective equipment designated in Section 8, close or cap valves and/or block or plug hole in leaking container and transfer to another container.

Contain material as described above and call the local fire or police department for immediate emergency assistance.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Use appropriate containment to avoid runoff or release to sewer or waterways.

LAND SPILL: Use appropriate containment to avoid runoff or release to ground.

GENERAL PROCEDURES: Remove containers of strong oxidizers from release area.

RELEASE NOTES: If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802.

In case of accident or road spill notify:
CHEMTREC in USA at 800-424-9300
CANUTEC in Canada at 613-996-6666
CHEMTREC, other countries, at (International code)+1 703 527 3887

COMMENTS:

See Section 13 for disposal information and Section 15 for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

7. HANDLING AND STORAGE

HANDLING:

Use appropriate personal protective equipment as specified in Section 8. Handle in a well ventilated area.

Handle and use in a manner consistent with good industrial/manufacturing techniques

and practices.

STORAGE:

Store in unopened containers under cool and dry conditions.

Do not store with, or close to oxidizers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

	EXPOSURE LIMITS					
	OSHA PEL		ACGIH TLV		Supplier OEL	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Phosphoric acid, bis(2-ethylhexyl) ester	TWA	NL	NL	NL	NL	NL
	STEL	NL ⁽¹⁾	NL	NL	NL	NL
Phosphoric acid, mono(2-ethylhexyl) ester	TWA	NL	NL	NL	NL	NL
	STEL	NL	NL	NL	NL	NL

OSHA TABLE COMMENTS:

1. NL = Not Listed

ENGINEERING CONTROLS: Good ventilation should be sufficient to control airborne levels of material.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.

SKIN: To prevent any contact, wear impervious protective clothing such as neoprene or butyl rubber gloves, apron, boots or whole bodysuit, as appropriate.

RESPIRATORY: Always wear NIOSH approved respiratory protective equipment when there may be potential for airborne exposure.

WORK HYGIENIC PRACTICES: Facilities storing or using this material should be equipped with an eyewash facility and a safety shower.
Good personal hygiene practices should always be followed.

COMMENTS: No PEL's, TLV's or OEL's for this product or it's ingredients are listed in the current issue of ACGIH's Guide to Occupational Exposure Values nor have they been determined by the manufacturer.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Characteristic

APPEARANCE: Clear

COLOR: Yellow

pH: Not Applicable

VAPOR PRESSURE: <1 mmHg at 125°C (257°F)

VAPOR DENSITY: Not Available

BOILING POINT: Not Available

FREEZING POINT: Not Available

MELTING POINT: <-60°C (-76°F)

SOLUBILITY IN WATER: Insoluble

EVAPORATION RATE: Not Available

DENSITY: 0.974 g/ml at 20°C (68°F)

SPECIFIC GRAVITY: 0.974 @ 20°C

VISCOSITY #1: 160Centipoise at 0°C (32°F)

VISCOSITY #2: 56Centipoise at 20°C (68°F)

MOLECULAR FORMULA: C₁₆H₃₅O₄P

MOLECULAR WEIGHT: 322.4 g/gmol

COEFF. OIL/WATER: Not Available

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: NO

CONDITIONS TO AVOID: Heat.

STABILITY: The product is stable under normal ambient conditions of temperature and pressure.

POLYMERIZATION: Will not occur

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of both phosphorus and carbon and acids of phosphorus.

INCOMPATIBLE MATERIALS: Strong Oxidizers

11. TOXICOLOGICAL INFORMATION

ACUTE

ORAL LD₅₀: 1400 mg/kg (rat)

DERMAL LD₅₀: >2000 mg/kg (rabbit)

INHALATION LC₅₀: Not Available

EYE EFFECTS: This material may cause significant irritation to the eyes.

SKIN EFFECTS: This material is expected to cause significant irritation to the skin.

SENSITIZATION: Not Available

TARGET ORGANS: Eyes

Skin

Respiratory system

CARCINOGENICITY:

Listed by IARC - No

Listed by NTP - No

Listed by OSHA - No

MUTAGENICITY: Negative in the Ames Test.
Negative in the Mouse lymphoma

REPRODUCTIVE EFFECTS: Not Available

TERATOGENIC EFFECTS: Not Available

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: May cause adverse environmental impact if material reaches waterways.

ECOTOXICOLOGICAL INFORMATION: Not Available

DISTRIBUTION: Not Available

CHEMICAL FATE INFORMATION: Not Available

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of waste at an appropriate waste disposal facility according to current applicable laws and regulations.

FOR LARGE SPILLS: Contain material and call local authorities for emergency assistance. In consultation with the appropriate authorities, determine the disposal method or contact Albright & Wilson Americas.

PRODUCT DISPOSAL: Dispose of at a supervised incineration facility or an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.

EMPTY CONTAINER: Rinse drums with a suitable solvent and steam to remove vapors before disposal or reuse in accordance with applicable regulations.

GENERAL COMMENTS: Refer to Section 6, Accidental Release Measures for additional information.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Diisooctyl Acid Phosphate

PRIMARY HAZARD CLASS/DIVISION: 8

UN/NA NUMBER: UN1902

PACKING GROUP: III

LABEL: Corrosive

NAERG: 153

CANADA TRANSPORT OF DANGEROUS GOODS**PROPER SHIPPING NAME:** Diisooctyl Acid Phosphate**PRIMARY HAZARD CLASS/DIVISION:** 8**UN/NA NUMBER:** UN1902**PACKING GROUP:** III**LABEL:** Corrosive**AIR (ICAO/IATA)****PROPER SHIPPING NAME:** Diisooctyl Acid Phosphate**PRIMARY HAZARD CLASS/DIVISION:** 8**UN/NA NUMBER:** UN1902**LABEL:** Corrosive**VESSEL (IMO/IMDG)****PROPER SHIPPING NAME:** Diisooctyl Acid Phosphate**PRIMARY HAZARD CLASS/DIVISION:** 8**UN/NA NUMBER:** UN1902**LABEL:** Corrosive**EUROPEAN TRANSPORTATION:****ADR/RID HAZARD CLASSIFICATION:** 8**ADR/RID ITEM NUMBER:** 38° c**U.S. CUSTOMS HARMONIZATION NUMBER:** 2919.00.50.50

15. REGULATORY INFORMATION**UNITED STATES****DOT LABEL SYMBOL AND HAZARD CLASSIFICATION**



DOT Corrosive

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES:

**FIRE: NO PRESSURE GENERATING: NO REACTIVITY: NO ACUTE: YES
CHRONIC: NO**

313 REPORTABLE INGREDIENTS: Not Applicable

TITLE III NOTES: Not Applicable

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA RQ: Not Applicable

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All intentional ingredients are listed on the TSCA Inventory.

TSCA STATUS: Export notification required.

NATIONAL RESPONSE CENTER: U.S. Coast Guard National Center
telephone # 1-800-424-8802

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION



Corrosive: Class E

WHMIS Corrosive

WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM): This product is WHMIS controlled.

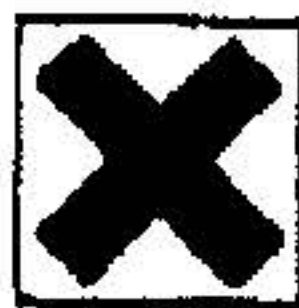
CANADA INGREDIENT DISCLOSURE LIST: This product does contain ingredient(s) on the "Ingredient Disclosure List".

CANADIAN ENVIRONMENTAL PROTECTION ACT: All intentional

ingredients are listed on the DSL (Domestic Substance List).

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



R 22: Harmful if swallowed.

R 38: Irritating to skin.

R 41: Risk of serious danger to eyes.

S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 39: Wear eye/face protection.

EEC Harmful - "Xn"

EUROPEAN COMMUNITY REGULATORY: All intentional ingredients are listed on the European's EINECS Inventory.

MEXICO

This product is considered to be corrosive according to Mexican Standard, Instruction No. 9, ANNEX I.

STATE REGULATIONS

Not Available

REGULATIONS

LOCAL REGULATIONS: Not Available

16. OTHER INFORMATION

REASON FOR ISSUE: New format with additional information.

APPROVED BY: William T. Stewart **TITLE:** Product Stewardship Manager

INFORMATION CONTACT: Product Stewardship Analyst

REVISION SUMMARY

Revision #: 4

This MSDS replaces the August 03, 2000 MSDS. Any changes in information are as follows:
In Section 15
EEC Symbol Id.

NFPA CODES

FIRE: 1 **HEALTH:** 3 **REACTIVITY:** 0

H = 3 F = 1 R = 0

HMIS CODES**FIRE: 1 HEALTH: 3 REACTIVITY: 0 PROTECTION: D****MANUFACTURER SUPPLEMENTAL NOTES:**

HAZARD WARNING: This product belongs to a chemical family that HAS BEEN TESTED in combination with Trimethylolpropane, Trimethylolpropane derived products or their corresponding Trimethylolpropane homologs for toxicity of the thermal decomposition products in the absence of flame. Products in this chemical family PRODUCED OBSERVABLE ADVERSE HEALTH EFFECTS in laboratory animals. There is a possibility that this thermal decomposition produces bicyclic phosphates and/or phosphites. Bicyclic phosphates and phosphites have acute neurotoxic properties and may cause convulsive seizures in laboratory test animals. Therefore, this product should not be used in conjunction with Trimethylolpropane or Trimethylolpropane derived products unless tested to determine their decomposition toxicity. Follow all precautionary measures outlined in this Material Safety Data Sheet and/or contact Rhodia Inc.

DATA SOURCES:

Acute Oral LD50 (rat), Mobil M2251-77
Acute Dermal LD50 (rabbit), Mobil M2082-81
Acute Dermal Irritation (rabbit), Mobil M2084-81
Acute Eye Irritation (rabbit), Mobil 2083-81
Mutagenicity, Ames, Litton MCTR 255-77
Mutagenicity, Mouse Lymphoma, Mobil M1221-81
Product Health Hazard Review by Consultant Toxicologist Dr. R. V. Blanke

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